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Paper #5

Validation of the Early Onset Scoliosis Questionnaire (EOSQ) as applied to the Classification of Early Onset Scoliosis (C-EOS) Etiology Designation Before Scoliosis Treatment

Brandon Ramo, Anna McClung, Chan-Hee Jo, Burt Yaszay, Lindsay Andras, Paul Sponseller, Matthew Oetgen

Summary: This study applies the C-EOS to a prospectively-collected database of early onset scoliosis (EOS) patients to determine the effect of C-EOS etiology and Cobb angle designations on EOSQ scores to differentiate quality of life in this heterogeneous patient population. Etiology plays a strong role in EOSQ scores with congenital and idiopathic patients generally scoring higher in most domains compared to both neuromuscular and syndromic patients while Cobb angles appear to have inverted but weak correlations with EOSQ domains.

Hypothesis: Baseline Health-Related Quality of Life (HRQOL) Scores in a heterogeneous group of Early Onset scoliosis patients will be affected by their C-EOS etiology designation.

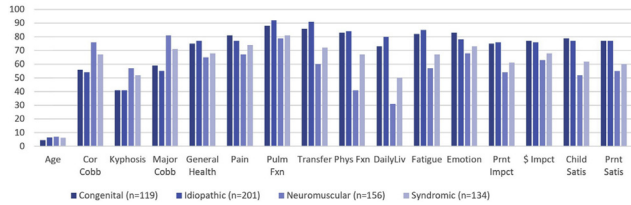
Introduction: The C-EOS attempts to divide EOS patients by etiology and major curvature characteristics. The EOSQ is a HRQOL measure which has been validated by its originators but not yet validated in an external population of patients. We applied the C-EOS to a multi-center database of EOS patients to see if etiology C-EOS designations predict differences in EOSQ scores.

Methods: Patients were assigned a C-EOS designation based on clinical and radiographic information. EOSQ scores were then calculated from the patients questionnaire information prior to any surgical intervention or prior to nonoperative treatment (for patients who have not undergone surgery) of their EOS deformity.

Results: 610 EOS patients were available for analysis who had at least one EOSQ. This included 119 congenital (C) at mean age 4.5, 201 idiopathic (I) mean age 6.3, 156 neuromuscular (NM) mean age 7.0, and 134 syndromic (S) patients mean age 6.2. In general, NM and S patients had significantly larger coronal and sagittal curves (NM: 76,57; S: 67,51) than C and I patients (C:56,41; I:54,41). In general, NM and S patients scored statistically and clinically significantly lower than C and I patients in many EOSQ domains including General Health, Pulmonary Function, Emotion, Financial Impact and Parent Satisfaction (Figure 1). NM patients also scored lowest for pain. C and I patients demonstrated no differences from each other in any EOSQ domain. Cobb angles had generally weak correlations with any of the EOSQ domains in total and within C-EOS etiologies.

Conclusion: Syndromic and neuromuscular C-EOS diagnoses lead to lower HRQOL EOSQ scores *before* treatment of their scoliosis which must be taken in to account by studies seeking to compare outcomes of treatment for these patients.

Figure 1. Age, Cobb Angles, EOSQ Domain score by C-EOS Etiology



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